1-1-2019

Parents' reactions to unhealthy food v. pro-health sponsorship options for children's sport: An experimental study

Maree Scully

Melanie Wakefield

Simone Pettigrew

Bridget Kelly
University of Wollongong, bkelly@uow.edu.au

Helen Dixon

Parents' reactions to unhealthy food v. pro-health sponsorship options for children's sport: An experimental study

Abstract

The Authors 2020. Objective:To explore parents' responses to sponsorship of children's sport by unhealthy food brands and two alternative pro-health sponsorship options.Design:Between-subjects online experiment with four sponsorship conditions: (i) non-food branding (control); (ii) unhealthy food branding; (iii) healthier food branding; (iv) public health nutrition campaign branding. Participants were shown a short video and a promotional flyer for a fictional junior sports programme, with sponsor content representing their assigned brand. Afterwards, participants were asked a series of questions assessing their brand awareness, brand attitudes and preference for food sponsor branded products.Setting:Australia.Participants:Australian parents (n 1331) of children aged 6-9 years.Results:Compared with the control condition, unhealthy food sponsorship promoted increased awareness, branded product preferences and favourable attitudes towards unhealthy food sponsor brands. Healthier food sponsorship promoted similar effects for healthier food sponsor brands, except there was no significant increase in positive attitudes towards these brands. Sponsorship by public health nutrition campaigns promoted more negative attitudes towards unhealthy food sponsor brands and increased preference for healthier food sponsor branded products. Overall, healthier food sponsors and public health campaign sponsors were perceived to have better programme-sponsor fit and to be more appropriate sponsors of children's sport than unhealthy food sponsors.Conclusions:Restrictions on unhealthy food sponsorship of children's sport are needed to prevent unhealthy food brands from exploiting junior sport sponsorship to enhance their appeal. Sponsorship of children's sport by healthier food brands or public health nutrition campaigns could help promote healthier food choices among parents.

Disciplines

Education | Social and Behavioral Sciences

Publication Details

Scully, M., Wakefield, M., Pettigrew, S., Kelly Gillott, B. & Dixon, H. (2019). Parents' reactions to unhealthy food v. pro-health sponsorship options for children's sport: An experimental study. Public Health Nutrition,

Public Health Nutrition: page 1 of 11 doi:10.1017/S1368980019003318

Parents' reactions to unhealthy food *v.* pro-health sponsorship options for children's sport: an experimental study

Maree Scully[1], Melanie Wakefield[1], Simone Pettigrew[2,†], Bridget Kelly[3] and Helen Dixon[1,*]

[1]Centre for Behavioural Research in Cancer, Cancer Council Victoria, 615 St Kilda Road, Melbourne, Victoria 3004, Australia: [2]School of Psychology, Curtin University, Bentley, Western Australia, Australia: [3]Early Start, School of Health and Society, University of Wollongong, Wollongong, New South Wales, Australia

Submitted 29 January 2019: Final revision received 28 June 2019: Accepted 23 July 2019

Abstract

Objective: To explore parents' responses to sponsorship of children's sport by unhealthy food brands and two alternative pro-health sponsorship options.
Design: Between-subjects online experiment with four sponsorship conditions: (i) non-food branding (control); (ii) unhealthy food branding; (iii) healthier food branding; (iv) public health nutrition campaign branding. Participants were shown a short video and a promotional flyer for a fictional junior sports programme, with sponsor content representing their assigned brand. Afterwards, participants were asked a series of questions assessing their brand awareness, brand attitudes and preference for food sponsor branded products.
Setting: Australia.
Participants: Australian parents (*n* 1331) of children aged 6–9 years.
Results: Compared with the control condition, unhealthy food sponsorship promoted increased awareness, branded product preferences and favourable attitudes towards unhealthy food sponsor brands. Healthier food sponsorship promoted similar effects for healthier food sponsor brands, except there was no significant increase in positive attitudes towards these brands. Sponsorship by public health nutrition campaigns promoted more negative attitudes towards unhealthy food sponsor brands and increased preference for healthier food sponsor branded products. Overall, healthier food sponsors and public health campaign sponsors were perceived to have better programme–sponsor fit and to be more appropriate sponsors of children's sport than unhealthy food sponsors.
Conclusions: Restrictions on unhealthy food sponsorship of children's sport are needed to prevent unhealthy food brands from exploiting junior sport sponsorship to enhance their appeal. Sponsorship of children's sport by healthier food brands or public health nutrition campaigns could help promote healthier food choices among parents.

Keywords
Parents
Children's sport
Sport sponsorship
Public health nutrition
Obesity
Experiment

Community junior sport programmes provide an important opportunity for children to socialise and be physically active, and 60 % of Australian children participate in at least one organised sport outside school hours[1]. While sponsorship income may be fundamental to the viability of some junior sport programmes, it is concerning that in Australia the majority of food and beverage sponsors of these programmes are companies that sell unhealthy products[2]. The promotion of energy-dense nutrient-poor foods and beverages (collectively referred to as 'unhealthy foods' herein) in children's sport settings contradicts the otherwise health-promoting aspects of these settings and has the potential to create a 'health halo' around unhealthy sponsor brands[3]. There is also concern that such involvement of the food industry in the community is a form of corporate political activity that may act as a barrier to the development of effective public health policies for non-communicable disease prevention[4,5]. Current national regulations place no restrictions on this form of marketing, despite the majority of Australian parents supporting restrictions on unhealthy food sponsorship of children's sporting activities[6–8].

†Current affiliation: The George Institute for Global Health, Sydney, New South Wales, Australia.

**Corresponding author:* Email Helen.Dixon@cancervic.org.au

There is a growing body of published literature demonstrating that sport sponsorship can promote increased brand awareness, more favourable attitudes and stronger preferences for sponsors' branded products among adults and children[9–14]. However, much of this research has examined the effects of elite sport sponsorship on spectators and comparatively less is known about sponsorship effects at the junior sport level. Given the different social dynamics of junior sport compared with elite sport (e.g. child rather than professional athletes; spectators and those facilitating the activity often personally connected with athletes and the club or community in which the activity occurs), more research is needed to determine how sponsorship effects operate at the junior sport level. The few studies that have been conducted in this area have explored direct effects on children. For example, Kelly and colleagues' survey of about 100 children aged 10–14 years showed they had high recall of food sponsors of their local sports club and positive attitudes towards these sponsors[15]. Our recent experiment with over 1000 children of primary school age found modest sponsorship effects following brief exposure (~15 s) to a backpack containing youth-oriented sports merchandise featuring healthier food branding, but not unhealthy food branding[16]. Although parents typically accompany their children to organised sporting activities, no published studies have examined the effects of junior sport sponsorship on parents. Since parents are key role models and gatekeepers for their children's diets and sports participation, and (like children) are known to be susceptible to influence by other forms of food marketing[17,18], the effect of food-related sponsorship on parents' dietary attitudes and preferences warrants investigation.

The present study aimed to build on the limited evidence base on sport sponsorship effects by testing parents' responses to sponsorship of junior sport programmes by unhealthy food brands and two alternative pro-health sponsorship options (specifically healthier food brands and public health nutrition campaigns). It was hypothesised that unhealthy food sponsorship would increase parents' awareness of unhealthy food sponsor brands and positively influence their perceptions of and preference for unhealthy food sponsor brands relative to non-food sponsorship. Similarly, it was predicted that healthier food sponsorship would increase parents' awareness of healthier food sponsor brands and positively influence their perceptions of and preference for healthier food sponsor brands. In addition to increasing awareness of and positively influencing perceptions of public health nutrition campaign brands, it was expected that public health nutrition campaign sponsorship would also detract from the appeal of unhealthy foods.

Methods

Design and procedure

Using a between-subjects online survey experimental design, parents were randomly assigned to one of four sponsorship conditions: (i) non-food branding (control); (ii) unhealthy food branding; (iii) healthier food branding; or (iv) public health nutrition campaign branding. To control for potential product type and brand effects, parents were further randomised within condition to one of three product categories (e.g. breakfast cereal, takeaway food or non-alcoholic drink) and then to one of two brand sets (brand set A or brand set B). There were therefore six possible permutations within each of the four conditions (see Table 1).

All food brands chosen as sponsors are prominent in the Australian marketplace within their given product categories. While some of these brands produce products of varying levels of healthiness, their designation as either an 'unhealthy' or a 'healthier' food brand was based on (i) the overall nutritional profile of the majority of foods they sell and promote under that brand and (ii) that they produce some products that exemplify their assigned category (unhealthy or healthier) as indicated by their Health Star Rating. The Australian Health Star Rating system is a front-of-pack labelling scheme that provides an overall rating of the nutritional profile of a packaged food from half a star to five stars, with more stars indicating a healthier choice[19,20].

For the non-food branding sponsorship condition, we used well-known car, airline and telecommunications brands. Due to the limited number of public health nutrition campaigns that have run in Australia, this sponsorship

Table 1 Sponsor brands by sponsorship condition, product category and brand set

Sponsorship condition	Product category	Brand set	Brand name
Non-food branding (control)	Breakfast cereal	A	Mazda
		B	Nissan
	Takeaway food	A	Jetstar
		B	Virgin Australia
	Non-alcoholic drink	A	Vodafone
		B	Optus
Unhealthy food branding	Breakfast cereal	A	Kellogg's
		B	GoldenVale
	Takeaway food	A	Hungry Jack's
		B	Red Rooster
	Non-alcoholic drink	A	Sprite
		B	Mountain Dew
Healthier food branding	Breakfast cereal	A	Freedom Foods
		B	Lowan
	Takeaway food	A	Subway
		B	Grill'd
	Non-alcoholic drink	A	Mount Franklin
		B	Cool Ridge
Public health nutrition campaign branding	Breakfast cereal	A	Go for 2 & 5
		B	Try for 5
	Takeaway food	A	LiveLighter
		B	Swap it, Don't Stop it
	Non-alcoholic drink	A	Rethink Sugary Drink
		B	H30 Challenge

condition comprised a mix of both current and past national and state campaigns aimed at promoting the recommended intake of fruit and vegetables, healthier lifestyle behaviours or improved drink choices. As these campaigns are no longer running (i.e. 'Go for 2 & 5' and 'Swap It, Don't Stop It'), state-based (i.e. 'LiveLighter') or have not been widely promoted via mass media (i.e. 'Try for 5', 'Rethink Sugary Drink' and 'H30 Challenge'), they are likely to be much less familiar to parents than the other types of sponsor brands tested in the present study.

Parents were initially shown a short video and a promotional flyer for a fictional junior sports programme, with sponsor content representing their assigned sponsor brand. Following exposure to the intervention, parents completed a short distractor task before answering a series of questions assessing their brand awareness, brand attitudes, image perceptions, programme–sponsor fit perceptions and preference for food sponsors' products.

Participants

A sample of Australian parents of children aged 6–9 years was recruited from a large national online non-probability panel managed by Research Now SSI. Panel members opt in to receive email invitations to participate in research and receive points that can be redeemed for a variety of rewards such as gift vouchers. Upon accessing the survey, panellists were asked screening questions to confirm that they were the parent of at least one child aged between 6 and 9 years and were not a dietitian, nutritionist or employed (or had close family or friends) in the food manufacturing or marketing industries. Given the known lower participation rate of males in the survey panel, quotas were applied to achieve approximately 40 % of males in each sponsorship condition. Based on power calculations using results from a previous experimental study examining young adults' responses to simulated sport sponsorship models[16], a sample size of 1200 parents (i.e. n 300 per condition) was estimated to be sufficient to detect small effects ($d \sim 0{\cdot}2$) at 80 % power.

Intervention

The intervention comprised a combination of audio-visual and written promotional materials for a fictional children's multi-sport programme called 'Go Team'. An existing video for an Australian holiday programme showing children of primary school age talking about why children should play sport (https://www.youtube.com/watch?v=-H0dpyKzWUs) was professionally edited to include new start- and end-frames with the 'Go Team' programme name and logo displayed alongside the sponsor brand logo (see Fig. 1 for example start- and end-frames). A flyer promoting the 'Go Team' programme was developed by a graphic designer, with the layout, imagery and content informed by promotional material for actual junior sport programmes. In addition to outlining the benefits of the 'Go Team' programme and providing enrolment details, the flyer prominently featured the image of a free sports pack branded with the sponsor logo that each participating child would receive (see Fig. 2 for example flyer).

Fig. 1 Example of video (a) start- and (b) end-frame for the public health nutrition campaign branding condition

Each component of the intervention appeared on a separate screen within the online survey. Parents were asked to spend a few minutes viewing the video and reading the promotional flyer before answering some questions about them to maximise their engagement with the intervention. For example, parents were asked to rate (on a 7-point scale from 1 = 'strongly disagree' to 7 = 'strongly agree') their interest in the 'Go Team' programme, whether their children would enjoy the range of activities being offered and if they would consider enrolling their child. They also indicated how happy their child would be to receive the free sports pack and if their child would use items from the sports pack.

Outcome measures

Where possible, established measures from previous sponsorship research were employed to assess the following outcomes after their experimental exposure.

Brand awareness

Using items adapted from Jalleh *et al.*[21], participants were prompted to list brands that came to mind when they thought about their assigned product category (breakfast cereal, takeaway food or non-alcoholic drinks) and health

Fig. 2 Example of branded promotional flyer for the public health nutrition campaign branding condition

promotion campaigns that came to mind when they thought about those aimed at encouraging Australians to consume healthier foods and/or drinks or to be more active. For each item, participants could nominate a maximum of three brands/campaigns, with the option of 'none' also provided. Binary variables (including the 'none' responses) were created to indicate if participants listed the unhealthy food sponsor brand, healthier food sponsor brand and public health nutrition campaign sponsor brand for their assigned product category; referred to as 'top-of-mind awareness'.

Branded product preferences

Participants were shown images of two unhealthy and two healthier branded products for each product category, with the four alternatives representing actual products sold in the Australian marketplace by the food brands tested in the unhealthy and healthier food sponsorship conditions,

Fig. 3 Example of branded product preferences question for breakfast cereals (left to right: unhealthy branded product A; unhealthy branded product B; healthier branded product A; healthier branded product B)

respectively (see Fig. 3 for an example). As in our past studies[16], participants were then asked to select which of the four branded products they would most like to purchase in each choice scenario. All the unhealthy food branded products used in the preference tasks had a Health Star Rating of three or lower, while all the healthier food branded products had a Health Star Rating of four or higher. Separate binary variables were created to indicate whether participants selected the unhealthy food sponsor branded product or healthier food sponsor branded product for their assigned product category and brand set. We also generated count variables (range: 0–3) to denote the number of unhealthy and healthier foods each participant selected in the product preference tasks.

Brand attitudes

A 7-point semantic differential scale anchored by negative/positive was used to measure participants' attitudes towards three unhealthy food, three healthier food and three public health nutrition campaign sponsor brands. We created separate composite variables to reflect participants' ratings of the unhealthy food sponsor brand and healthier food sponsor brand for their assigned product category and brand set. Summary measures of overall attitudes towards unhealthy food brands and healthier food brands in general were also generated by averaging participants' ratings of the three unhealthy food sponsor brands and the three healthier food sponsor brands, respectively.

Image-based similarity

After viewing the intervention materials, participants were directed to take a moment to imagine the experience of having their child participate in the 'Go Team' junior sport programme, then rate how well five adjectives (fun, active, healthy, young, community-focused) describe the 'Go Team' programme on a 7-point scale (ranging from 1 = 'not at all' to 7 = 'very well'). Where participants had multiple children aged between 6 and 9 years of age, they were instructed to respond thinking about the child who had the most recent birthday. In a later section of the online survey, participants were asked to rate how well the same five adjectives describe the unhealthy food sponsor brand, healthier food sponsor brand and public health nutrition campaign sponsor brand, for their assigned product category and brand set. For each adjective, the difference in rating scores for the programme and sponsor brand was computed. These five difference scores were summed and then reverse coded to give an index of image-based similarity (range: 0–30), where higher numbers in the index indicate greater perceived similarity between the 'Go Team' programme and the sponsor brand[12].

Programme–sponsor fit

Using a single-item from Speed and Thompson[22], participants indicated their level of agreement (from 1 = 'strongly disagree' to 7 = 'strongly agree') that there was a logical connection between the 'Go Team' junior sport programme and the unhealthy food sponsor brand, healthier food sponsor brand and public health nutrition campaign sponsor brand for their assigned product category and brand set.

Beliefs about sport sponsorship

Participants were asked to make a value judgement as to how appropriate they thought it was for unhealthy food and drink brands, healthy food and drink brands, and health promotion campaigns to sponsor junior sport programmes. Responses were recorded on a 7-point scale (from 1 = 'very inappropriate' to 7 = 'very appropriate').

Statistical analysis

Regression analyses were conducted to test for differences by sponsorship condition, with the non-food branding (control) condition specified as the reference category. We initially ran all models including the interaction between sponsorship condition and product category and then between sponsorship condition and brand set. As only one of the forty interactions tested was statistically significant (a rate below that which would be expected by chance alone), we interpreted sponsorship effects as

Public Health Nutrition

Table 2 Characteristics of the sample of Australian parents of children aged 6–9 years, overall and by sponsorship condition

		Sponsorship condition			
	Total (*n* 1331)	Non-food branding (control) (*n* 330)	Unhealthy food branding (*n* 334)	Healthier food branding (*n* 334)	Public health nutrition campaign branding (*n* 333)
Sex (%)					
Male	40	40	40	39	40
Female	60	60	60	61	60
Age group (%)					
18–29 years	6	6	10	5	5
30–39 years	50	48	49	52	53
40–49 years	35	38	32	36	34
≥50 years	8	8	10	7	8
Highest level of education (%)					
Secondary school or less	22	24	23	18	25
TAFE or Trade Certificate or Diploma	32	29	33	32	35
University degree	45	46	44	50	40
Socio-economic position (area-based; %)†					
Low (1–33 %)	28	31	25	29	27
Medium (34–67 %)	36	33	38	37	38
High (68–100 %)	35	36	37	34	35

Percentages may not sum to 100 % due to rounding.
†Socio-economic position was determined according to the Australian Bureau of Statistics' Index of Relative Socio-Economic Disadvantage ranking for Australia using participants' residential postcode. This index ranks areas on a continuum of disadvantage (from most disadvantaged to least disadvantaged) taking into consideration characteristics that may enhance or reduce socio-economic conditions of the area. Data are missing for two participants who provided invalid postcodes.

equivalent across product categories and brand sets. However, both were retained as covariates in the final models. Predicted proportions and predicted means calculated from these covariate-adjusted models are reported throughout the results. All analyses were conducted using the statistical software package Stata/MP V.14.2[23].

Results

A total of 3644 panellists accessed the online survey via the link provided in their email invitation. After accounting for those who did not meet the eligibility criteria (*n* 1513), were unable to hear and/or see the audio-visual check question (*n* 205), qualified after their quota had been reached (*n* 1), were identified as duplicates (*n* 8), abandoned the survey before completion (*n* 496) or were removed following standard quality control processes (*n* 90), a final sample of 1331 parents was achieved. The demographic profile of the sample is summarised in Table 2.

Manipulation checks

Overall, participants agreed they were very interested in the 'Go Team' junior sport programme (mean = 4·99, SD = 1·51), their child would enjoy the range of activities offered (mean = 5·32, SD = 1·32) and they would consider enrolling their child in a junior sport programme like 'Go Team' (mean = 5·18, SD = 1·43). Participants also tended to agree their child would be happy to receive a free sports pack like the one shown on the 'Go Team' promotional flyer (mean = 5·61, SD = 1·51) and would use items from the sports pack (mean = 5·30, SD = 1·64). None of these ratings was found to differ by sponsorship condition, indicating the intervention materials were viewed comparably by participants in terms of their appeal, regardless of the type of branding that was featured.

Brand awareness

As shown in Fig. 4, compared with the control condition, participants exposed to unhealthy food sponsorship had higher top-of-mind awareness of the unhealthy food sponsor brand (36·5 *v.* 21·4 %; OR = 2·74, 95 % CI 1·83, 4·10, $P < 0·001$) and top-of-mind awareness of the healthier food sponsor brand was higher among participants in the healthier food sponsorship condition (13·2 *v.* 3·9 %; OR = 4·43, 95 % CI 2·25, 8·70, $P < 0·001$). However, exposure to public health nutrition campaign sponsorship did not promote significantly higher awareness of the public health nutrition campaign sponsor brand (2·1 *v.* 1·2 %; OR = 1·77, 95 % CI 0·51, 6·15, $P = 0·367$).

Branded product preferences

As Fig. 5 illustrates, compared with the control condition, participants exposed to unhealthy food sponsorship were more likely to choose the unhealthy food sponsor

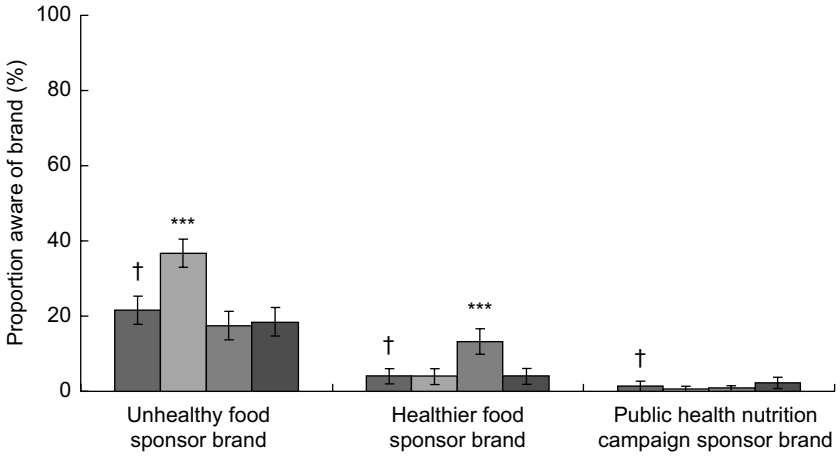

Fig. 4 Predicted proportion with awareness of sponsor brands by sponsorship condition (■, non-food branding; ■, unhealthy food branding; ■, healthier food branding; ■, public health nutrition campaign branding) among Australian parents of children aged 6–9 years (*n* 1331). 95 % confidence intervals are represented by vertical bars. Logistic regression analyses included product category and brand set as covariates. ***$P < 0{\cdot}001$; †reference category for logistic regression analyses

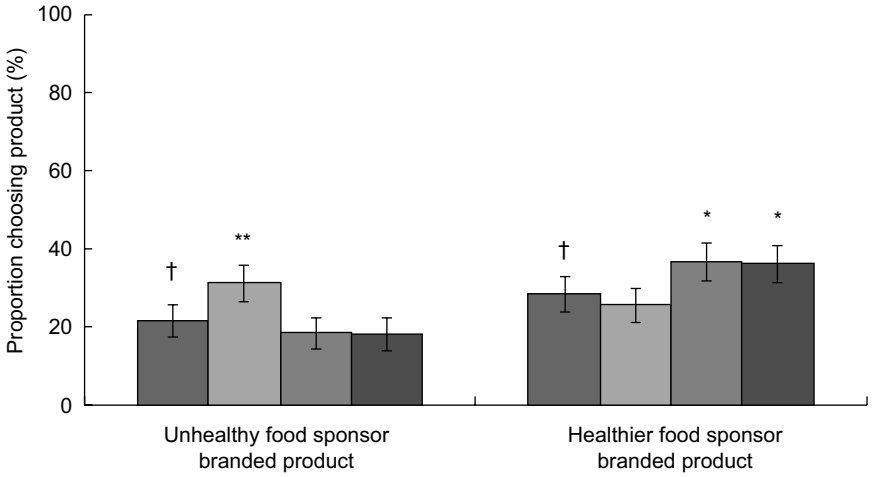

Fig. 5 Predicted proportion who chose sponsor products by sponsorship condition (■, non-food branding; ■, unhealthy food branding; ■, healthier food branding; ■, public health nutrition campaign branding) among Australian parents of children aged 6–9 years (*n* 1331). 95 % confidence intervals are represented by vertical bars. Logistic regression analyses included product category and brand set as covariates. *$P < 0{\cdot}05$, **$P < 0{\cdot}01$; †reference category for logistic regression analyses

branded product (31·2 *v.* 21·5 %; OR = 1·71, 95 % CI 1·19, 2·45, $P = 0{\cdot}004$) and participants exposed to healthier food sponsorship were more likely to choose the healthier food sponsor branded product (36·5 *v.* 28·2 %; OR = 1·53, 95 % CI 1·08, 2·17, $P = 0{\cdot}016$). Participants in the public health nutrition campaign sponsorship condition were also more likely to choose the healthier food sponsor branded product than those in the control condition (36·1 *v.* 28·2 %; OR = 1·50, 95 % CI 1·06, 2·12, $P = 0{\cdot}022$). There was an overall tendency for participants to select a higher number of healthier food products relative to unhealthy products in the product preference tasks (mean = 1·81 *v.* 1·19; $t_{(1330)} = 11{\cdot}97$, $P < 0{\cdot}001$), with no evidence that this varied by sponsorship condition (all $P > 0{\cdot}05$).

Brand attitudes

Across conditions, participants' attitudes towards unhealthy food sponsor brands (mean = 4·18) were generally less positive than their attitudes towards both healthier food sponsor brands (mean = 5·02; $t_{(1330)} = -14{\cdot}58$, $P < 0{\cdot}001$) and public health nutrition campaign brands (mean = 4·98; $t_{(1330)} = -14{\cdot}25$, $P < 0{\cdot}001$). Compared with participants in the control condition, participants exposed to unhealthy food sponsorship had more positive attitudes towards the unhealthy food sponsor brand (mean = 4·56 *v.* 4·15; $\beta = 0{\cdot}11$, $P = 0{\cdot}001$), while those exposed to public health nutrition campaign sponsorship showed less positive attitudes towards the unhealthy food sponsor brand (mean = 3·90 *v.* 4·15; $\beta = -0{\cdot}07$, $P = 0{\cdot}034$; see Fig. 6). Attitudinal ratings of the healthier food sponsor brand were

Public Health Nutrition

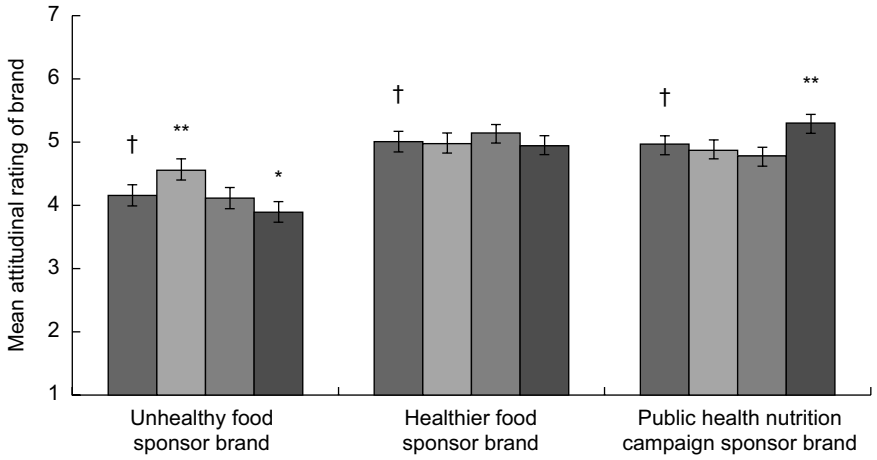

Fig. 6 Predicted mean attitudinal rating of sponsor brands by sponsorship condition (■, non-food branding; ■, unhealthy food branding; ■, healthier food branding; ■, public health nutrition campaign branding) among Australian parents of children aged 6–9 years (*n* 1331). 95 % confidence intervals are represented by vertical bars. Linear regression analyses included product category and brand set as covariates. *$P < 0{\cdot}05$, **$P < 0{\cdot}01$; †reference category for linear regression analyses

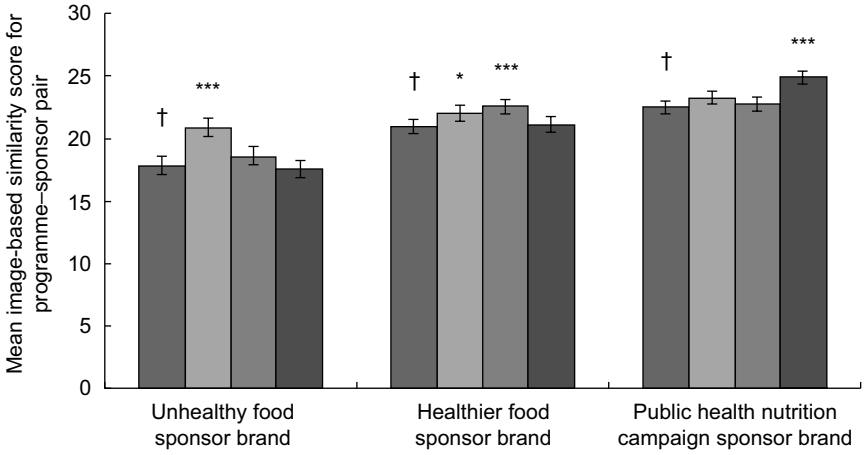

Fig. 7 Predicted mean image-based similarity scores for pairings of the 'Go Team' programme with sponsor brands by sponsorship condition (■, non-food branding; ■, unhealthy food branding; ■, healthier food branding; ■, public health nutrition campaign branding) among Australian parents of children aged 6–9 years (*n* 1331). 95 % confidence intervals are represented by vertical bars. Linear regression analyses included product category and brand set as covariates. *$P < 0{\cdot}05$, ***$P < 0{\cdot}001$; †reference category for linear regression analyses

not significantly affected by either healthier food sponsorship (mean = 5·14 *v.* 5·01; $\beta = 0{\cdot}04$, $P = 0{\cdot}203$) or public health nutrition campaign sponsorship (mean = 4·95 *v.* 5·01; $\beta = -0{\cdot}02$, $P = 0{\cdot}582$). However, exposure to public health nutrition campaign sponsorship promoted more positive attitudes towards the public health nutrition campaign sponsor brand (mean = 5·30 *v.* 4·96; $\beta = 0{\cdot}11$, $P = 0{\cdot}001$).

Image-based similarity

Across conditions, perceptions of image-based similarity between the 'Go Team' programme and the sponsor were higher for public health nutrition campaign sponsor brands (mean = 23·36) and healthier food sponsor brands (mean = 21·67) compared with unhealthy food sponsor brands (mean = 18·73; $t_{(1330)} = 24{\cdot}31$, $P < 0{\cdot}001$ and $t_{(1330)} = 17{\cdot}04$, $P < 0{\cdot}001$, respectively). Public health nutrition campaign sponsor brands were perceived to have slightly higher image-based similarity with the 'Go Team' programme than healthier food sponsor brands ($t_{(1330)} = 12{\cdot}09$, $P < 0{\cdot}001$). Figure 7 shows there was greater concordance between participants' image perceptions of the 'Go Team' programme and unhealthy food sponsor brand among those exposed to unhealthy food sponsorship as compared with the control condition (mean = 20·91 *v.* 17·82; $\beta = 0{\cdot}19$, $P < 0{\cdot}001$). Participants also perceived the image of the programme and healthier food sponsor

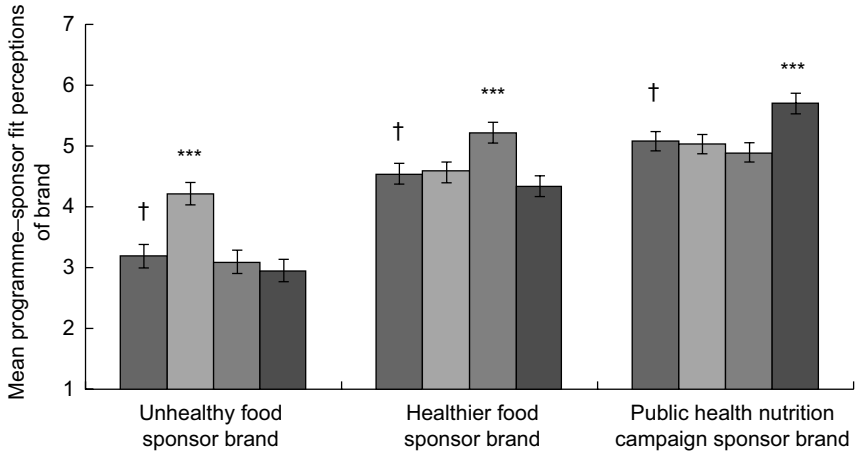

Fig. 8 Predicted mean programme–sponsor fit perceptions of sponsor brands by sponsorship condition (■, non-food branding; ■, unhealthy food branding; ■, healthier food branding; ■, public health nutrition campaign branding) among Australian parents of children aged 6–9 years (*n* 1331). 95 % confidence intervals are represented by vertical bars. Linear regression analyses included product category and brand set as covariates. ***$P < 0{\cdot}001$; †reference category for linear regression analyses

brand to be more similar following exposure to healthier food sponsorship (mean = 22·54 *v.* 20·97; $\beta = 0{\cdot}12$, $P < 0{\cdot}001$) and, unexpectedly, unhealthy food sponsorship (mean = 22·03 *v.* 20·97; $\beta = 0{\cdot}08$, $P = 0{\cdot}013$). Perceptions of image-based similarity between the 'Go Team' programme and the public health nutrition campaign sponsor brand were higher among participants exposed to public health nutrition campaign sponsorship (mean = 24·89 *v.* 22·51; $\beta = 0{\cdot}20$, $P < 0{\cdot}001$).

Programme–sponsor fit

Overall, public health nutrition campaign sponsor brands (mean = 5·18) were generally considered by participants to have greater programme–sponsor fit than both healthier food (mean = 4·67; $t_{(1330)} = 10{\cdot}08$, $P < 0{\cdot}001$) and unhealthy food (mean = 3·36; $t_{(1330)} = 28{\cdot}05$, $P < 0{\cdot}001$) sponsor brands. Healthier food sponsor brands were also seen to be more logically connected with the 'Go Team' programme than unhealthy food sponsor brands ($t_{(1330)} = 20{\cdot}99$, $P < 0{\cdot}001$). As illustrated in Fig. 8, compared with the control condition, participants perceived there to be a stronger fit between the 'Go Team' programme and the sponsor brand when they had been exposed to that particular type of sponsorship (unhealthy food sponsorship: mean = 4·22 *v.* 3·19; $\beta = 0{\cdot}24$, $P < 0{\cdot}001$; healthier food sponsorship: mean = 5·22 *v.* 4·54; $\beta = 0{\cdot}18$, $P < 0{\cdot}001$; public health nutrition campaign sponsorship: mean = 5·70 *v.* 5·07; $\beta = 0{\cdot}18$, $P < 0{\cdot}001$).

Beliefs about sport sponsorship

Across conditions, participants judged unhealthy food and drink brands (mean = 2·46) to be less appropriate sponsors of junior sport programmes than both healthy food and drink brands (mean = 5·89; $t_{(1330)} = -52{\cdot}91$, $P < 0{\cdot}001$) and health promotion campaigns (mean = 5·89; $t_{(1330)} = -52{\cdot}21$, $P < 0{\cdot}001$). However, participants' assessment of the appropriateness of unhealthy food and drink brands sponsoring junior sport programmes was less negative following exposure to unhealthy food sponsorship compared with the control condition (mean = 2·84 *v.* 2·40; $\beta = 0{\cdot}11$, $P = 0{\cdot}001$). Exposure to healthier food sponsorship or public health nutrition campaign sponsorship did not affect parents' judgements of sponsor acceptability (all $P > 0{\cdot}05$).

Discussion

The present study results indicate that parents can be adversely influenced by unhealthy food sponsorship of junior sport programmes, with exposure to this type of sponsorship associated with increased awareness and more positive perceptions of unhealthy food sponsor brands and increased preference for their branded products. However, encouragingly, results also suggest there is potential to harness the power of junior sport sponsorship to promote healthy eating, with both healthier food and public health nutrition campaign sponsorship shifting parents' preferences towards healthier food sponsor branded products.

The observation that parents were affected by the unhealthy food sponsorship contrasts with our earlier experimental study with children that found no significant effects for unhealthy food sponsorship[16]. These disparate findings are likely due to several factors. First, the three unhealthy food sponsor brands tested in the earlier children's study were already heavily marketed to young people and closely aligned with sport such that the modest experimental advertising exposure was probably insufficient to produce measurable effects in the face of considerable prior advertising exposure to these brands. To overcome these possible ceiling effects, efforts were made in the

Public Health Nutrition

present study to select unhealthy food sponsor brands that were recognisable but not as clearly linked with sport and particularly junior sport. Second, the intervention was comparatively weaker in the children's study, with students only exposed to a static image of a junior sports pack repeatedly branded with a logo reflecting their assigned sponsorship condition and then asked to rate how much they liked the sports pack and how they would feel if they could keep it. By comparison, in the present study parents viewed a combination of audio-visual and written promotional materials for an unfamiliar junior sport programme and completed a series of questions designed to increase their level of engagement with the intervention. Further research is needed to establish if the unhealthy food sponsorship effects seen among parents can be replicated with children (and adolescents) when using a similarly intensive sponsorship intervention and less high-profile unhealthy food sport sponsor brands.

There was some indication of the public health nutrition campaign sponsorship acting as counter-advertising against unhealthy food brands, with parents perceiving unhealthy food sponsor brands less favourably after being exposed to this type of sponsorship. However, unlike the results from our prior sport sponsorship experiments with children[16] and young adults[13], public health nutrition campaign sponsorship did not reduce the likelihood of parents showing a preference for unhealthy food sponsor branded products. This finding may have been partly due to the number of campaign brands being tested in the present study (six *v.* three in our earlier research) which, because of the scarcity of current and past national mass media campaigns targeting healthy eating, meant that several of the six campaign brands may have been less well known to parents. Indeed, the brief exposure to these brands that parents in the public health nutrition campaign sponsorship condition received via the intervention materials did not lead to an increase in unprompted awareness (cf. our young adult experiment where we did observe a positive effect on unprompted awareness when testing only three campaigns). It is conceivable that public health nutrition campaign sponsorship would have greater cut-through following cumulative exposure to these brands, as would occur if this intervention was implemented in a real-world setting. Future studies are needed, though, to explore how parents respond to public health nutrition campaign sponsorship when it occurs in conjunction with other types of sponsorship (e.g. are its effects diluted when unhealthy food sponsorship is also present). Such research could also potentially identify combinations of sponsorship that are likely to best promote healthy eating (e.g. healthier food and public health nutrition campaign sponsorship without unhealthy food sponsorship).

As has been theorised[24], we found evidence of the image of the junior sport programme transferring to the sponsor brand, with this pattern seen for unhealthy food, healthier food and public health nutrition campaign sponsorship. While this suggests that junior sport sponsorship could provide a useful vehicle through which to promote the appeal of healthier food brands, in the case of unhealthy food sponsorship this is worrying as it can add a 'health halo' to unhealthy food brands. This was somewhat reflected in parents who were exposed to unhealthy food sponsorship expressing more positive attitudes towards the unhealthy food sponsor brand relative to the control group. These findings point to the mechanisms by which sponsorship may exert influence on consumers beyond mere brand exposure, such that enhanced perceptions of sponsor brand image may ultimately contribute to brand loyalty. Previous research found that unhealthy food sponsors of children's sport were perceived by children to be 'kind, generous and cool' and that spectators and participants may reward sponsors for their perceived corporate social responsibility by purchasing their products[6,15]. Prohibiting unhealthy food sponsorship in children's sport settings would prevent such brands from receiving a healthy image boost through their alignment with sport and protect parents (and children) from being targeted with marketing for unhealthy products in what should be a health-promoting setting.

Overall, the alternative pro-health sponsorship options tested in our study were considered to have higher levels of programme–sponsor fit and image-based similarity, and to be more appropriate sponsors of junior sport programmes, than unhealthy food sponsor brands. Perceptions of congruence between the sponsor and sponsored event have previously been shown to be positively associated with interest in the sponsor, attitudes towards the sponsor and intention to use the sponsored product[22]. However, at present, few healthier food brands are leveraging junior sport sponsorship to strengthen their brand image[2]. Further, there are only a couple of examples in the literature of sponsorship of children's sporting activities being used to promote public health messages[25]. This missed opportunity could go some way to being remedied through the establishment and implementation of sponsorship guidelines in community sporting settings that encourage sporting organisations to pursue pro-health sponsorship options.

Important strengths of the present study were the large sample size and rigorous experimental design whereby parents were randomised to one of three product categories and one of two brand sets, thus providing confidence that any observed effects were due to the sponsorship manipulation. However, some study limitations should be acknowledged. While the use of an online survey methodology enabled the intervention to be tested cost-effectively under controlled conditions, it did not allow the impacts of junior sport sponsorship on parents' actual food choices to be assessed. Instead we measured product preferences using a simulated food choice task which may have been subject to social desirability bias. Nevertheless, this is unlikely to have affected the size of the observed sponsorship effects given this same bias should have

Public Health Nutrition

applied equally to the control group. Finally, the recruitment of parents from a non-probability based online panel has implications for the representativeness of our sample; although, as this was an experimental study rather than a population study, obtaining a representative sample was not a primary consideration.

Conclusion

In conclusion, the findings from the present research suggest that sport sponsorship can boost the image and appeal of sponsor brands. Restrictions on unhealthy food sponsorship of children's sport are needed to prevent unhealthy food brands from exploiting junior sport sponsorship to create a 'health halo' around their products. Such policy action may also provide greater opportunities for healthier food brands or public health nutrition campaigns to forge sponsorship arrangements with children's sport, which have the potential to help promote healthier food choices among parents.

Acknowledgements

Acknowledgements: The authors thank James King for designing and producing the promotional flyers and for editing the video that were used as experimental stimuli in this research. *Financial support:* This study was funded by VicHealth and the Victorian Department of Health and Human Services. M.W. was supported by funding from a National Health and Medical Research Council Principal Research Fellowship. The funders had no role in the design, analysis or writing of this article. *Conflict of interest:* None. *Authorship:* H.D. designed the study, with input from all other authors. M.S. managed the data collection. M.S. and H.D. analysed and interpreted the data, and drafted the manuscript, with critical input from all other authors. *Ethics of human subject participation:* This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human subjects were approved by Cancer Council Victoria's Institutional Research Review Committee. Written informed consent was obtained from all subjects.

References

1. Australian Bureau of Statistics (2012) *4901.0 – Children's Participation in Cultural and Leisure Activities, Australia, April 2012*. Canberra, ACT: ABS.
2. Watson WL, Brunner R, Wellard L *et al.* (2016) Sponsorship of junior sport development programs in Australia. *Aust N Z J Public Health* **40**, 326–328.
3. Meenaghan T & Shipley D (1999) Media effect in commercial sponsorship. *Eur J Mark* **33**, 328–348.
4. Mialon M, Swinburn B, Allender S *et al.* (2016) Systematic examination of publicly-available information reveals the diverse and extensive corporate political activity of the food industry in Australia. *BMC Public Health* **16**, 283.
5. Mialon M & Mialon J (2018) Analysis of corporate political activity strategies of the food industry: evidence from France. *Public Health Nutr* **21**, 3407–3421.
6. Kelly B, Baur LA, Bauman AE *et al.* (2013) Views of children and parents on limiting unhealthy food, drink and alcohol sponsorship of elite and children's sports. *Public Health Nutr* **16**, 130–135.
7. Kelly B, Baur LA, Bauman AE *et al.* (2012) Restricting unhealthy food sponsorship: attitudes of the sporting community. *Health Policy* **104**, 288–295.
8. Morley B, Martin J, Niven P *et al.* (2012) Public opinion on food-related obesity prevention policy initiatives. *Health Promot J Aust* **23**, 86–91.
9. Walraven M, Koning RH & van Bottenburg M (2012) The effects of sports sponsorship: a review and research agenda. *Mark Rev* **12**, 17–38.
10. Walraven M, Bijmolt THA & Koning RH (2014) Dynamic effects of sponsoring: how sponsorship awareness develops over time. *J Advert* **43**, 142–154.
11. Biscaia R, Correia A & Rosado AF (2013) Sport sponsorship: the relationship between team loyalty, sponsorship awareness, attitude toward the sponsor, and purchase intentions. *J Sport Manage* **27**, 288–302.
12. Gwinner KP & Eaton J (1999) Building brand image through event sponsorship: the role of image transfer. *J Advert* **28**, 47–57.
13. Dixon H, Scully M, Wakefield M *et al.* (2018) The impact of unhealthy food sponsorship vs. pro-health sponsorship models on young adults' food preferences: a randomised controlled trial. *BMC Public Health* **18**, 1399.
14. Bragg MA, Roberto CA, Harris JL *et al.* (2018) Marketing food and beverages to youth through sports. *J Adolesc Health* **62**, 5–13.
15. Kelly B, Baur LA, Bauman AE *et al.* (2011) 'Food company sponsors are kind, generous and cool': (mis)conceptions of junior sports players. *Int J Behav Nutr Phys Act* **8**, 95.
16. Dixon H, Scully M, Wakefield M *et al.* (2018) Community junior sport sponsorship: an online experiment assessing children's responses to unhealthy food *v.* pro-health sponsorship options. *Public Health Nutr* **21**, 1176–1185.
17. Dixon H, Scully M, Wakefield M *et al.* (2011) Parent's responses to nutrient claims and sports celebrity endorsements on energy-dense and nutrient-poor foods: an experimental study. *Public Health Nutr* **14**, 1071–1079.
18. Pettigrew S, Tarabashkina L, Roberts M *et al.* (2013) The effects of television and Internet food advertising on parents and children. *Public Health Nutr* **16**, 2205–2212.
19. Commonwealth of Australia (2016) About Health Star Ratings. http://healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/About-health-stars (accessed December 2017).
20. Commonwealth of Australia (2016) Guide for Industry to the Health Star Rating Calculator. http://healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/guide-for-industry-document (accessed December 2017).
21. Jalleh G, Donovan RJ, Giles-Corti B *et al.* (2002) Sponsorship: impact on brand awareness and brand attitudes. *Soc Mark Q* **8**, 35–45.
22. Speed R & Thompson P (2000) Determinants of sports sponsorship response. *J Acad Mark Sci* **28**, 226–238.
23. StataCorp (2015) *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP.
24. Smith G (2004) Brand image transfer through sponsorship: a consumer learning perspective. *J Mark Manage* **20**, 457–474.
25. Kubacki K, Hurley E & Rundle-Thiele SR (2018) A systematic review of sports sponsorship for public health and social marketing. *J Soc Mark* **8**, 24–39.

Public Health Nutrition